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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,694	01/27/2004	Sherwin V. Kevy	1459.008A	1436

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HESLIN ROTHENBERG FARLEY & MESITI PC
5 COLUMBIA CIRCLE
ALBANY, NY 12203

EXAMINER	
SCHUBERG, LAURA J	

ART UNIT	PAPER NUMBER
1657	

DATE MAILED: 12/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/765,694	KEVY ET AL.	
	Examiner	Art Unit	
	Laura Schuberg	1657	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *19 and 20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☒ Claim(s) *3* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/2/04 7/21/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I (claims 1-18) in the reply filed on 10/16/2006 is acknowledged.

Claims 1-20 are pending.

Claims 19 and 20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Claims 1-18 have been examined on the merits.

Claim Objections

Claim 3 is objected to because of the following informalities: The anticoagulants should all be spelled out initially next to the shortened terminology for clarity purposes. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 2, 7-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGinnis et al (US 2004/0120942 A1).

Claim 1 is drawn to a method for the production of a coagulant from anticoagulated whole blood comprising:

a) obtaining a volume of anticoagulated whole blood from a subject;

b) mixing the anticoagulated whole blood with a precipitating agent;

c) incubating the mixture of b) for a time sufficient to produce cellular and specific plasma component precipitate and a supernatant;

d) separating the precipitate from the supernatant;

e) recovering the supernatant wherein the supernatant is used as a coagulant.

Claim 2 includes wherein the volume of anticoagulated whole blood is between 8 to 10 ml.

Claim 7 includes wherein the precipitating agent is ethanol.

Claims 8-10 include wherein the ethanol used is at a starting concentration of about 10% to 100%, about 25% to 95%, about 50% to 95% respectively.

Claim 11 includes wherein the precipitating agent is a mixture of ethanol and calcium chloride.

Claims 12 and 13 include wherein the incubation step requires less than 45 minutes and 30 minutes respectively.

Claim 14 includes wherein the coagulant prepared is autologous.

Claim 15 includes wherein the coagulant prepared is homologous.

Claim 16 includes wherein the separating step is accomplished by centrifuging the mixture.

Claim 17 includes wherein the separating step is accomplished by filtering the mixture.

Claim 18 includes a combination of centrifugation and filtration of the mixture.

McGinnis teaches a device and a process for preparing autologous thrombin. In the device of the invention, whole blood, plasma, or a plasma fraction is exposed to components within a reaction chamber. These materials convert the whole blood, plasma, or the plasma fraction to the desired thrombin serum. After sufficient processing time, a serum is produced that contains clotting cascade proteins in concentrations higher than those occurring under normal physiological conditions (page 1 para 12). This thrombin serum is interpreted to be a coagulant produced by the device/process. The materials used include ethanol (page 5 para 51) and calcium chloride (page 4 para 44) which will inherently act as precipitating agents. The whole blood is taught to be anticoagulated (page 4 end of para 42). The device is taught to contain a filter for

separation of the coagulant from the precipitate (page 2 para 17) and also contains provisions for centrifugation (page 2 para 21-22). The combination of the centrifugation and the packed bead bed, which provides for the thrombin (coagulant) to escape is interpreted to combine centrifuging with filtration for the separation step (page 2 para 21-22). A reaction period (incubation step) of approximately fifteen minutes is required to produce the thrombin serum (coagulant)(page 4 para 37). The concentration of ethanol used is 195 proof (page 6 para 64) which falls in the same concentration range as claimed by Applicant.

McGinnis does not specifically teach that the process of producing autologous thrombin is accomplished with a specific volume of anticoagulated whole blood. McGinnis does not specifically teach wherein the coagulant prepared is homologous.

One of ordinary skill in the art would have been motivated to use whole blood in the process of McGinnis because it would have shortened and simplified the process of producing the thrombin serum which McGinnis states is desirable to do (page 1 para 5). One of ordinary skill in the art would have had a reasonable expectation of success because McGinnis teaches that the device that is used for the process is suitable for use with whole blood (page 1 para 12) and that the materials used (ethanol and calcium chloride) convert the whole blood, plasma or the plasma fraction (any one of these) into the desired thrombin serum (page 1 para 12). The amount of whole blood used would have been a matter of routine optimization depending on the final amount of thrombin (coagulant) needed. One of ordinary skill in the art would have been motivated to use

the smallest amount of blood possible when drawing from the same patient to minimize blood loss during surgery.

One of ordinary skill in the art would have been motivated to prepare homologous thrombin for use in medical, pharmaceutical and industrial applications where autologous thrombin was unavailable or unsuitable (page 1 para 3). One of ordinary skill in the art would have had a reasonable expectation of success because McGinnis does teach that it is possible to produce the thrombin from the blood of a single human donor (page 1 para 7) and that it is possible to use thrombin of bovine origin if necessary (page 1 para 4).

Therefore, the teachings of McGinnis render obvious Applicant's invention as claimed.

Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGinnis et al (US 2004/0120942 A1) as applied to claims 1, 2, 7-18 above, and further in view of Sato et al (US 2005/0070872 A1).

Claim 3 is drawn to wherein the whole blood is anticoagulated with an anticoagulant selected from the group consisting of ACD, ACD/mannitol, CPD, and EDTA.

Claim 4 includes wherein the anticoagulant is acid-citrate-dextrose.

Claim 5 includes wherein the anticoagulant is ACD/mannitol.

McGinnis teaches a method of obtaining thrombin from anticoagulated whole blood as described above. McGinnis specifically teaches the use of a citrate anticoagulant (page 4 para 42).

McGinnis does not specifically teach the claimed anticoagulants or the addition of mannitol.

Sato teaches a blood bag system that uses anticoagulants and teaches that ACD, ACD/mannitol, CPD, EDTA and citrate anticoagulants are art recognized equivalents as anticoagulants for the collection of blood (page 3 para 37).

Therefore, it would have been obvious for one of ordinary skill in the art to substitute any one of the anticoagulants taught by Sato in the method of McGinnis. One of ordinary skill in the art would have been motivated by the fact that Sato teaches that they are all suitable for use as anticoagulants in the collection of blood. One of ordinary skill in the art would have had a reasonable expectation of success making this substitution because McGinnis teaches that citrate anticoagulants are used in the method and Sato teaches that ACD, ACD/mannitol, CPD and EDTA are equivalent to citric acid anticoagulants (page 3 para 37).

Therefore, the combined teachings of McGinnis and Sato render obvious Applicant's invention as claimed.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over McGinnis et al (US 2004/0120942 A1) and Sato et al (US 2005/0070872 A1) as applied to claims 1-5 and 7-18 above, and further in view of Sato et al (US 4,812,310).

Claim 6 includes wherein the mannitol is present in a concentration of 7.5 mg/ml ACD.

The combination of McGinnis and Sato ('872) teach the invention of claims 1-5 and 7-18 as described above, but do not specifically mention the concentration of mannitol to be used in combination with ACD.

Sato ('310) teaches that it has been found that by adding mannitol to a conventional preserving solution such as ACD that the concentration depends on the amount of blood to be preserved, the decrease in Na+ concentration and the increase in K+ concentration in the plasma for the hemolysis to be prevented (column 4 lines 40-50). Sato ('310) teaches that mannitol was usually added in an amount of 0.67 to 6.7 w/v% (column 5 line 66).

The concentration of mannitol used in the method of McGinnis would have been a matter of routine optimization. One of ordinary skill in the art would have been motivated to adjust the level of mannitol since Sato ('310) teaches that the concentration depends on the amount of blood to be preserved, the decrease in Na+ concentration and the increase in K+ concentration in the plasma (column 4 lines 40-50). One of ordinary skill in the art would have had a reasonable expectation of success because McGinnis teaches that in practical use, accommodations must be made for

instances of over and under anticoagulation of the whole blood aliquot (page 4 para 42) and Sato ('310) teaches a range of concentrations for optimization (column 5 line 66).

Therefore, the combined teachings of McGinnis, Sato ('872) and Sato ('310) render obvious Applicant's invention as claimed.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura Schuberg whose telephone number is 571-272-3347. The examiner can normally be reached on Mon-Fri 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber can be reached on 571-272-0925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leon B Lankford, Jr
Primary Examiner
Art Unit 1651

Laura Schuberg